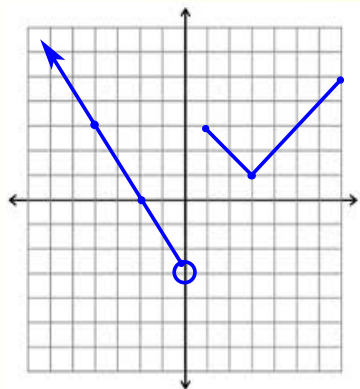


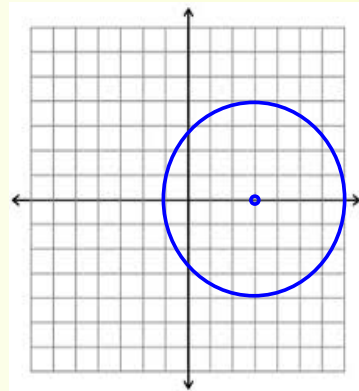
Alg. 2 Warm Up #10-2

Write an equation for each graph, state the domain and range:

1.



2.



MATH NOTES

p. 108 Even and Odd Functions

When a function $f(-x) = f(x)$, the function f is called an **even function**. For example, for the function $f(x) = x^2$:

$$f(-x) = (-x)^2 = x^2 = f(x)$$

Thus, $f(x) = x^2$ is an even function.

When $f(-x) = -f(x)$, the function f is called an **odd function**. For example for the function $f(x) = x^3$:

$$f(-x) = (-x)^3 = -x^3 = -f(x)$$

Therefore, $f(x) = x^3$ is an odd function.

Even $f(-x) = f(x)$

$(-x, y)$ (x, y)

y-axis symmetry

$y = x^2$ $y = |x|$

Odd $f(-x) = -f(x)$

180° rotation about the origin

origin symmetry

$y = x^3$ $y = \frac{1}{x}$

HW Questions:

CL 2-176. Write an equation for each of the following sequences.

a. $10, 7, 4, \dots$

b. $-2, -8, -32, \dots$

CL 2-177. For each of the equations below, complete the following:

- Find the x - and y -intercepts.
- Find the vertex.
- Sketch a graph of each parabola on its own set of axes.
- Write the equation in graphing form.

a. $y = x^2 + 8x + 12$

b. $y = (x - 4)(x + 2)$

c. $y = x^2 - 6x - 9$

d. $y = x^2 + 5x + 1$

$$0 = x^2 - 6x + \underline{\quad} - 9 \underline{\quad}$$

$$0 = x^2 + 5x + 1$$

$$x = \frac{-5 \pm \sqrt{25 - 4(1)(1)}}{2}$$

$$x = \frac{-5 \pm \sqrt{21}}{2}$$

$$\begin{aligned} (3+3\sqrt{2}, 0) &\} x\text{-int} \\ (3-3\sqrt{2}, 0) &\} \\ (0, -9) &y\text{-int} \\ (3, -18) &\text{vertex} \end{aligned}$$

$$x\text{-int: } \left(\frac{-5 + \sqrt{21}}{2}, 0 \right) \left(\frac{-5 - \sqrt{21}}{2}, 0 \right)$$

$$\text{vertex: } y = x^2 + 5x + \frac{25}{4} + 1 - \frac{25}{4}$$

$$y = \left(x + \frac{5}{2} \right)^2 - \frac{21}{4}$$

$$\left(-\frac{5}{2}, -\frac{21}{4} \right)$$

CL 2-178. Factor each of the following expressions.

a. $2x^2 + 7x - 4$

$$(2x - 1)(x + 4)$$

b. $8x^2 + 24x + 10$

$$2(4x^2 + 12x + 5)$$

$$2(4x + \quad)(x + \quad)$$

$$2(2x + 1)(2x + 5)$$

$$\frac{10x}{2x}$$

$$(1.5)$$

CL 2-179. Dinner at David's costs \$8.95 today and has been increasing an average of 7% per year. Let t = time in yrs.

- a. What will it cost in 10 years? b. What did it cost 10 years ago?

$$y = 8.95(1.07)^t$$

when $t=0$

$$t = -10$$

CL 2-180. If $g(x) = (x+1)^2$, complete each part below.

a. $g(5)$

b. $g(2m+4)$

c. x if $g(x) = 9$

\uparrow
 input \searrow
 $g(2m+4) = (2m+4+1)^2$
 $g(2m+4) = (2m+5)(2m+5)$
 $g(2m+4) = 4m^2 + 20m + 25$

CL 2-181. Solve each equation for y .

a. $4 - 2(x+y) = 9$

b. $x = 2(y-1)^2 + 2$

Tan Worksheet:

$$\begin{aligned}
 3b) \quad y &= 2x^2 - 14x + 5 \longrightarrow \\
 y &= 2\left(x^2 - 7x + \frac{49}{4}\right) + 5 - \frac{49}{2} \\
 y &= 2\left(x - \frac{7}{2}\right)^2 - \frac{39}{2}
 \end{aligned}$$

$$\begin{aligned}
 c) \quad & \left[\frac{1}{2}\left(-\frac{2}{3}\right)\right]^2 + \frac{1}{9} - \frac{1}{9} \\
 & \left[-\frac{1}{3}\right]^2
 \end{aligned}$$

Group Event: No grapher.

HW: Ch. 2 Review WS #2
(Purple)

Chapter 2 Test
tomorrow.